



FHWA Research & Technology Agenda Website

Presentation by John Moulden
FHWA Office of Research, Development, and Technology
to the
Wisconsin Peer Exchange
October 2013





Enhancing Corporate R&T – Division – State Collaboration

- Corporate R&T is increasing support for Division R&T Coordinators
 - Dedicated webinars to brief & discuss FHWA R&T programs
 - R&T Agenda website
 - NHI R&T Coordinator web-based training course being developed
 - TFHRC on-call policy guidance & technical support is ongoing
 - Encourage increased Division funding for R&D-related travel
- Division role in soliciting state R&T issues/R&T needs
 - To ensure current state issues/needs help guide FHWA R&T priorities
 - Take advantage Div. R&T Coordinator's current SP&R oversight role
 - Potential action: Submit "Top Five" state needs to HRTM





The Division's Role in FHWA R&T Programs

- Exploring potential Division involvement in promoting FHWA R&T priorities
 - Opportunities to promote R&D collaboration with TFHRC
 - Suggest high priority Pooled Fund R&T projects to states
- Sponsor Division R&T Coordinator short-term reciprocal details with TFHRC/HRTM
- Other ideas?





The New MAP-21 Environment

- In SAFETEA-LU Congress designated funds for the R&T Program
- MAP-21 provides FHWA with the **flexibility** to structure a comprehensive R&T program that aligns with highway transportation needs and supports FHWA's performance goals
- The new FHWA R&T Agenda website shows how the R&T program is aligned to address six major national highway challenges





The website is designed to:

- Tell the FHWA R&T story – what we do & why
- Provide high-level overview & context of FHWA R&T, show the cross-cutting work of our offices
- Improve accessibility of the FHWA R&T portfolio to stakeholders
- Provide a web-based mechanism for stakeholder input





The website presents FHWA's R&T Agenda from two perspectives:

1) Organized by the **major, national-level highway R&T challenges** facing the U.S. and how FHWA is addressing them:

- Advancing Safety
- Enhancing System Performance
- Improving the Mobility of People and Goods
- Maintaining Infrastructure Integrity
- Promoting Environmental Sustainability
- Preparing for the Future





2) The FHWA R&T Agenda is also presented by traditional topic areas:

- Infrastructure
- Operations
- Safety
- Policy
- Planning & Environment
- Federal Lands
- Exploratory Advanced Research (EAR)
- Innovative Program Delivery (IPD)





The FHWA R&T Program is based on **objectives** and **strategies** for each office

- Offices accomplish their **objectives** through **innovative strategies** that guide research planning on high-priority topics. **Activities** follow from the objectives and strategies.
- The website depicts each office's objectives and strategies, as well as examples of activities that illustrate how the R&T program stimulates new practices and policies, resulting in safer, more efficient, and more sustainable roadways across the U.S.





R&T Agenda Homepage / Challenges

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Coordinating, Developing, and Delivering Highway Transportation Innovations

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Federal Highway Administration (FHWA) Research and Technology Agenda

Preparing for the Future
FHWA's vision for the Nation's roadways extends beyond today's challenges, anticipating the emerging issues of tomorrow.
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Welcome to the FHWA Research and Technology Agenda. Discover how FHWA's offices and programs are addressing six of the Nation's key highway challenges.

Challenges

The FHWA Research and Technology Agenda targets six high-priority highway challenges that affect all of us

- [advancing safety](#)
- [improving mobility](#)
- [maintaining infrastructure integrity](#)
- [enhancing performance](#)
- [promoting sustainability](#)
- [preparing for the future](#)

Meeting the Challenges

Learn how FHWA's offices and programs are meeting today's highway challenges through research.

- Infrastructure
- Operations
- Safety
- Federal Lands
- Planning, Environment, and Realty
- Policy
- Exploratory Advanced Research
- Innovative Program Delivery

Share Your Thoughts

You can help shape the agenda by providing feedback about highway challenges as well as the objectives and strategies FHWA is using to address them. Look for opportunities to contribute throughout the site.





Challenges: Landing Page

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Challenges

FHWA Addresses the Nation's Key Highway Challenges




Advancing safety

Safety is the U.S. Department of Transportation's top priority and is underscored throughout FHWA's research areas.




Improving the Mobility of People and Goods

A growing economy needs highways that safely and reliably move people and goods where they need to go.




Maintaining Infrastructure Integrity

Keeping pavements and structures in good condition requires innovations that improve the monitoring and repair of our roadways.




Enhancing System Performance

Effective tools and research help decrease highway congestion, safety risks, and wear-and-tear in the face of growing demand.



Promoting Environmental Sustainability

Environmentally friendly transportation networks benefit more than our highway system and FHWA is leading the way.



Preparing for the Future

FHWA's vision for the Nation's roadway extends beyond today's challenges, anticipating the emerging issues of tomorrow.





Challenges / Advancing Safety: Page Layout and Features

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Challenge: Advancing Safety



Advancing Safety
Safety is the U.S. Department of Transportation's top priority, underscored throughout FHWA research areas.

The Research and Technology Agenda supports the U.S. Department of Transportation's commitment to safety by applying a focused, collaborative, and strategic approach to conducting research and deploying innovations. FHWA is fostering a safety culture and advancing the use of scientific methods and data-driven decisionmaking to anticipate and help prevent events leading to traffic crashes, fatalities, and injuries.

With highway fatalities near historic lows, FHWA's safety research and technology advancements are making a difference. While this progress is encouraging, FHWA continues to develop and deploy new ideas and products to save lives and prevent injuries in the future.

Learn More
Discover how FHWA is Advancing Safety by exploring the prior offices and programs responsible for this challenge.
Federal Lands Operations Safety

Showcase Activities

The Interactive Highway Safety Design Model (Safety) is a data analysis tool, which is helping transportation professionals anticipate safety issues on a project.

The Work Zone Mobility and Safety Program (Operations) helps keep road workers safe and traffic moving.

The Haxton Way Pedestrian Path (Federal Lands Highway) in Washington State separates pedestrians and cyclists from high-speed roads.

Objective: 1. Managing congestion by improving reliability and operating the system at peak performance.

Work Zone Mobility and Safety Program

Work zones are a necessary part of maintaining and upgrading our highway system. The combination of more work zones and heavier traffic volumes has resulted in work zones having a greater effect on roadway systems in recent years. The American public has cited work zones as second only to poor traffic flow in causing dissatisfaction with the roadway system. FHWA's Work Zone Mobility and Safety Program is working to "make work zones work better" by providing transportation practitioners with high-quality products, tools, and information, which can be of value in planning, designing, and implementing safer, more efficient, and less congested work zones.

[<<< Back to Objectives and Strategies](#)



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- [improving mobility](#)
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- [promoting sustainability](#)
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Meeting the Challenges

Learn how FHWA's offices and programs are meeting today's highway challenges through research.

- Infrastructure
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Share Your Thoughts

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Meeting the Challenges

Federal Highway Administration's Research and Technology Program is Meeting Today's Highway Challenges

 Infrastructure	 Operations	 Safety	 Federal Lands
 Planning, Environment, and Reality	 Policy	 Exploratory Advanced Research	 Innovative Program Delivery

FHWA defines objectives and strategies that guide research, development activities across eight research areas. Each research area targets one or more of the Nation's six highway challenges.





Meeting the Challenges / Operations: Landing Page

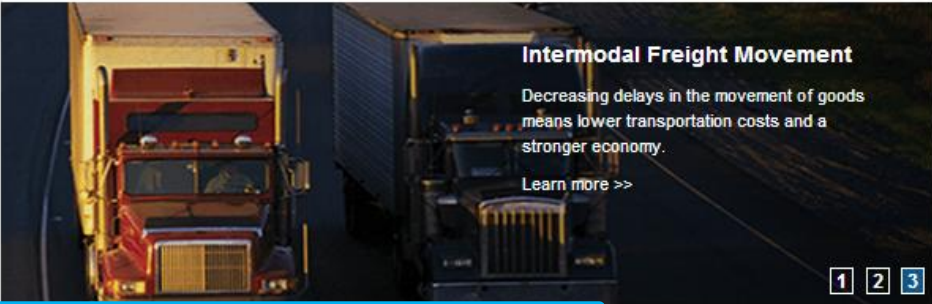
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Meeting the Challenge: Operations



Intermodal Freight Movement
Decreasing delays in the movement of goods means lower transportation costs and a stronger economy.
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Highway reliability affects our ability to visit family, get to work, deliver products to customers, live our lives, and grow the economy. FHWA's operations research is developing innovative technology and processes that lead to system-wide improvements in how FHWA and its State and local partners manage and increase the reliability of the National Highway System.

These innovations target the daily operations of transportation agencies, including demand management strategies, work-zone planning guidance, and improved traffic analysis techniques. Research into new technologies and noteworthy management practices provides State and local agencies with additional tools to implement the institutional changes that will allow them to meet operational challenges.

[Read More](#)

For More Information
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Improved, real-time management of unexpected disruptions, such as adverse weather conditions and crashes, enables transportation agencies to improve the reliability of the highway system during times of unexpected stress. FHWA is exploring technologies—such as traffic and weather sensors, wirelessly connected vehicles, and remote management of traffic signals—to provide better information and highway management options during disruptive events.

By deploying innovative transportation technologies to manage congestion and delays, FHWA is helping transportation agencies embrace 21st-century system policies and tools that can deliver a reliable highway system for individuals and businesses nationwide.

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Meeting the Challenges / Operations: Objective One Showcase Activity

↑ **Objective: 1. Managing congestion by improving reliability and operating the system at peak performance.**

Strategies

- Develop and deploy traffic incident detection technologies and management processes.
- Promote efficient work-zone management processes.
- Develop and deploy road-weather maintenance technologies and management processes.
- Develop and deploy enhanced traffic signal technologies and arterial roadway management processes.
- Promote a corridor approach to freeway traffic management including the use of managed lanes and alternate routing to make more efficient use of existing roadway capacity.
- Develop and deploy integrated freeway operations systems to enable more proactive traffic management.
- Promote travel demand management programs that enable better route, mode, time, and location choices for travel, to reduce travel demand during peak periods.
- Develop congestion-pricing programs to manage the demand for limited transportation facilities in severely congested areas.
- Develop and deploy tools, guidance, and training for State and local roadway operators on the management of nonrecurring events that interrupt or overwhelm transportation operations.
- Develop and deploy real-time traveler information systems, which enable travelers to make choices that are more efficient.

↓ **Objective: 2. Building a strong foundation for proactive operations.**

↓ **Objective: 3. Improving reliability through efficient movement of freight.**

Showcase Activities

- Active Transportation and Demand Management (ATDM)

Management (TM) Program

- Adaptive Signal Technologies
- Road Weather Management
- Work Zone Management
- Safety Program
- Congestion Pricing

🕒 **Objective: 1. Managing congestion by improving reliability and operating the system at peak performance.**

Active Transportation and Demand Management (ATDM)

Rising congestion rates increase the potential for crashes, delays, and air pollution, and impose adverse costs to society. FHWA promotes Active Transportation and Demand Management strategies to help transportation agencies to address the problem of congestion more effectively. These strategies include a variety of real-time and predictive tools, approaches, and methods to dynamically manage and control traffic demand and transportation facility capacity, based on prevailing traffic conditions. FHWA also provides resources, such as the Active Transportation and Demand Management toolbox, which helps agencies to implement the Active Transportation and Demand Management approach. By applying such tools and strategies, transportation agencies can better address traffic flow issues, improve travel time reliability, and optimize capacity throughout their transportation networks.

Activity Contact

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↓ **Objective: 2. Building a strong foundation for proactive operations.**

↓ **Objective: 3. Improving reliability through efficient movement of freight.**





Meeting the Challenges / Operations: For More Information

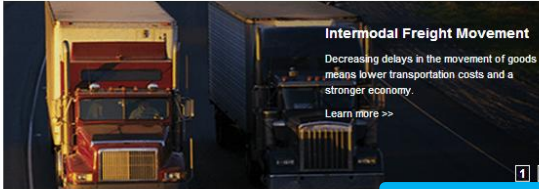
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Meeting the Challenge: Operations



Intermodal Freight Movement

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Office of Operations Research and Development (R&D)

The Office of Operations R&D continually improves operations-related technology through research, development, and testing. Operations includes vehicle operations on highways such as efficiently, effectively, and safely moving vehicles on roads, finding solutions that address congestion, finding ways to increase the number of people and goods able to travel on different road types, vehicle-infrastructure interactions, intelligent transportation systems, and tolling.

The office primarily supports other Federal Highway Administration (FHWA) offices, the FHWA Resource Center and the Research and Innovative Technology Administration's (RITA) Intelligent Transportation Systems (ITS) Joint Program Office (JPO) in the development of near-term research, development, and technology (RD&T) program plans and projects, demonstration field tests of technologies, and evaluation of customer needs, acceptance, and benefits of new operations-related products.

The Office of Operations R&D is comprised of three teams of scientists and engineers, who work on operations-related research. The majority of the research is funded through outside programs including the ITS Program, the FHWA's Exploratory Advanced Research (EAR) Program, FHWA's Small Business Innovative Research (SBIR), and FHWA's Poised Fund Program. The teams work on the following focus areas:

Team Name	Focus Areas
Transportation Enabling Technologies Team	The Transportation Enabling Technologies Team performs research on the development and integration of technologies that will enable the deployment of advanced intelligent transportation systems and operations systems, such as cooperative vehicle-highway systems. Examples of enabling technologies include communication systems, enhanced global positioning systems (GPS), traffic control algorithms, and traffic sensors.
Transportation Operations Concepts and Analysis Team	The Transportation Operations Concepts and Analysis Team performs research related to modeling and simulation of ITS, Connected Vehicle strategies and innovative designs to determine feasibility, create visualization, and to conduct benefit cost analysis.
Transportation Operations Applications Team	The Transportation Operations Applications Team performs research on hardware and software tools and strategies to test and develop innovative transportation applications that improve operations. Many of these applications are tested and developed on site at TFHRC's Cooperative Vehicle Highway Testbed.

Office of Operations R&D Links

- [Office of Operations R&D](#)
- [Operations R&D Laboratory](#)
- [Operations R&D Projects](#)
- [Operations R&D Experts](#)
- [Operations R&D Publications](#)
- [Operations Topics](#)

Other Operations Links

- [FHWA's Office of Operations](#)
- [Research and Innovative Technology Administration's Intelligent Transportation Systems Connected Vehicle Research](#)





FHWA R&T Agenda Feedback Questions

- What are the most pressing highway problems in your state?
- Is FHWA addressing the right (nationally critical) challenges? If not, what other national challenges should FHWA address?
- Does FHWA's overall research strategy align with the most critical challenges? If not, what areas are missing?
- Are you engaged in research that may contribute to FHWA's research strategies?





Questions?

